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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/607,747	06/30/2000	Min Shao	4797 US	9788

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GLENN PATENT GROUP
3475 Edison Way
Suite L
Menlo Park, CA 94025

EXAMINER

SUBRAMANIAN, NARAYANSWAMY

ART UNIT	PAPER NUMBER
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3624

DATE MAILED: 07/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/607,747

Applicant(s)

SHAO ET AL.

Examiner

Narayanswamy Subramanian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in response to the request for continued examination filed on May 13, 2004. Amendments to claim 1 have been entered. Claims 1-51 are pending and have been examined. The rejections and response to arguments are stated below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aleia et al (US Patent 5,991,733) in view of Caid et al (US Patent 5,619,709).

With reference to claim 1, Aleia teaches a computer implemented method of predicting the likelihood of collecting on a delinquent debt on an account, the method comprising storing a predictive model of debt collection likelihood generated using historical data of delinquent debt accounts, the collection methods used in each account, and the success of the collection methods in each account; receiving data of a currently delinquent debt account; selecting a collection method; generating a signal indicative of the likelihood of collecting on the currently delinquent debt by applying the data of the currently delinquent debt account and the selected collection method to the predictive model (See Aleia Column 7 line 26 – Column 8 line 9, Column 8 line 61 – Column 9 line 14, Column 10 lines 2-18 and claim 1) and using said signal indicative of the likelihood of collecting on the currently delinquent debt for, but not limited to, prioritizing

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collection resource expenditures (See Aleia Column 8 lines 3-29). The historical data is interpreted to include collector's notes.

Aleia does not explicitly teach the steps of storing documents and/or notes model as context vectors determining a document or notes word space; transforming current documents/notes into a document context vector and performing any of: comparing said document context vector against context vectors of said documents/notes to determine a subject matter similarities result and using said result as input into a model: and using components of said document context vector expressed in context vector eigenbasis as input into a model.

Caid teaches the steps of storing documents and/or notes model as context vectors determining a document or notes word space (See Aleia Column 2 lines 32-44); transforming current documents/notes into a document context vector and performing any of: comparing said document context vector against context vectors of said documents/notes to determine a subject matter similarities result and using said result as input into a model (See Aleia Column 12 line 39- Column 13 line 3); and using components of said document context vector expressed in context vector eigenbasis as input into a model (See Aleia Column 22 lines 29-67).

Both Aleia and Caid are concerned with pattern recognition based on predictive models. Aleia uses quantitative and qualitative data to recognize patterns, and so does Caid although the disclosure of Caid focuses mainly on document data. It would have been obvious to one with ordinary skill in the art at the time of applicant's invention to include the steps taught by Caid to the disclosure of Aleia. The combination of the

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disclosures taken as a whole suggests that users would have benefited from analyzing large volumes of information quickly and in a cost effective way.

With reference to claims 3 and 8 Aleia teaches a method of claim 1, wherein the delinquent debt was incurred on a medical service (See Aleia claim 2) or wherein the delinquent debt has been charged-off (See Aleia claim 1).

With reference to claims 9-13 and 17 Aleia teaches a method of claim 1, wherein the collection methods include a set of different letters that can be sent to delinquent debtors (See Aleia claim 4), different times at which a letter can be sent to delinquent debtors (See Aleia Column 17 lines 38-42), different phone call approaches (See Aleia claim 4), different debt lifecycle stages when phone calls may be made (See Aleia Column 17 lines 38-42), different debt lifecycle stages at which a letter can be sent to delinquent debtors (See Aleia Column 17 lines 38-42) and different collections specialists who may be assigned to work the account (See Aleia claim 1).

With reference to claims 25, 26, 28-35 and 37, Aleia teaches a method of claim 1, wherein the collection methods include legal actions (See Aleia claim 10), employment of a collection agency (See Aleia claim 4) and wherein the historical data includes information regarding an account before the account became delinquent (See Aleia claim 1), account purchase information (See Aleia claim 1, premium paid includes account purchase information), information regarding the Merchant Category Code of purchases on the account (See Aleia Figure II, Column 9 lines 34-36, line of business implies merchant category code), information regarding the amount of account purchases (See Aleia claim 1, premium implies information regarding the amount of account purchases), information regarding account cash transactions (inherent in the disclosure of Aleia

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regarding transactions), information regarding account payments made (See Aleia claim 1), events related to previous collection activities (See Aleia Column 7 lines 41-60) , collectors' notes related to previous collection activities (See Aleia Column 17 lines 29-31) and wherein the collectors' notes use a natural language format (See Aleia Column 17 lines 29-34).

With reference to claims 2 and 4-7, Aleia and Caid combined teach a method of claim 1 as discussed above.

Aleia and Caid combined do not explicitly teach the steps wherein the delinquent debt was incurred on a credit card, on a utility bill, on an unpaid check, on mail-ordered goods, or on an electronic transaction via the Internet.

Official notice is taken that the step wherein the delinquent debt was incurred on a credit card, on a utility bill, on an unpaid check, on mail-ordered goods, or on an electronic transaction via the Internet is old and well known in the art. By identifying these different ways of incurring a delinquent debt, creditors can consolidate their recovery effort and thereby speed up and minimize the cost of recovery.

It would have been obvious to one with ordinary skill in the art at the time of applicant's invention to include the step wherein the delinquent debt was incurred on a credit card, on a utility bill, on an unpaid check, on mail-ordered goods, or on an electronic transaction via the Internet to the combined disclosures of Aleia and Caid. The combination of the disclosures taken as a whole suggests that by identifying the different ways of incurring a delinquent debt, creditors would have benefited from consolidating their recovery effort and thereby speed up and minimize the cost of recovery.

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With reference to claims 14-16, 18-24 and 27, Aleia and Caid combined teach a method of claim 1 as discussed above.

Aleia and Caid combined do not explicitly teach the steps wherein the collection methods include different days of the week, different monthly dates and different hours of the day during which phone calls may be made, electronic communications that may be made with the debtor, offering debt counseling, debt rescheduling, offering additional credit, changing delinquency financial penalties for an account, offering debt forgiveness, a search for a missing debtor or the sale of a debt.

Official notice is taken that the steps wherein the collection methods include different days of the week, different monthly dates and different hours of the day during which phone calls may be made, electronic communications that may be made with the debtor, offering debt counseling, debt rescheduling, offering additional credit, changing delinquency financial penalties for an account, offering debt forgiveness, a search for a missing debtor or the sale of a debt are old and well known in the art. These options help the creditor adopt a collection method that is best suited for a debtor in the recovery effort.

It would have been obvious to one with ordinary skill in the art at the time of applicant's invention to include the steps wherein the collection methods include different days of the week, different monthly dates and different hours of the day during which phone calls may be made, electronic communications that may be made with the debtor, offering debt counseling, debt rescheduling, offering additional credit, changing delinquency financial penalties for an account, offering debt forgiveness, a search for a missing debtor or the sale of a debt to the combined teachings of Aleia and Caid. The

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combination of the disclosures taken as a whole suggests creditors would have benefited from tailoring a collection method that is best suited for a debtor in the recovery effort.

With reference to claims 36 and 38-41, Caid teaches the steps wherein the notes use preformatted codes (See Caid Column 12 lines 33-38), further comprising transforming the notes into a mathematical representation that encodes contextual similarity of terms contained in the notes (See Caid Column 28 lines 45-57), creating the mathematical representation using a vector model (See Caid Column 28 lines 45-57) and creating the mathematical representation using context vector methodology by determining co-occurrence statistics of terms contained in the notes (See Caid Column 28 lines 45-63).

Response to Arguments

4. Applicant's arguments with respect to claims 1-51 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Narayanswamy Subramanian whose telephone number is (703) 305-4878. The examiner can normally be reached Monday-Thursday from 8:30 AM to 7:00 PM.

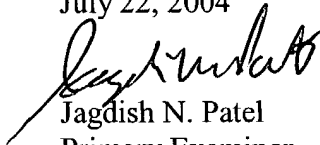
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Millin can be reached at (703) 308-1065. The fax number for Formal or Official faxes and Draft to the Patent Office is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1113.

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N. Subramanian

July 22, 2004



Jagdish N. Patel
Primary Examiner